

Complementary feeding in rural Bangladesh: family food for breast-fed infants

The transition from being exclusively breast-fed to eating the same food as the family is crucial in the life of a young child. The World Health Organization and UNICEF recommend that infants should be exclusively breast-fed for the first 6 months of life and that breastfeeding should continue well into the second year of life.¹ From 6 months of age infants should be given frequent small complementary meals that are rich in micronutrients, protein and energy. Findings from the Nutritional Surveillance Project indicate that, while breastfeeding is sustained, infants are rarely given foods containing micronutrients and protein, even when these foods are available in the household. This suggests that there is potential to improve infants' diets by making better use of the foods already available in the household. Breast-milk and a good mixture of well-prepared family food can meet the needs of young children during this vulnerable time.

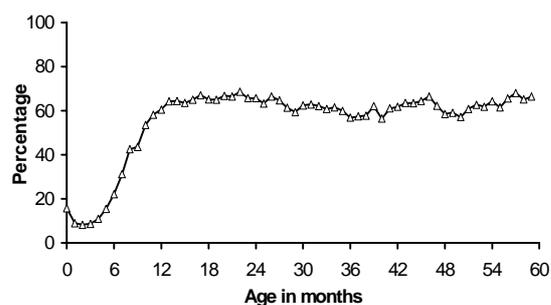
In rural Bangladesh the percentage of underweight infants rises nearly three-fold from 22% at 6 months to 60% at 12 months of age. This sharp increase is shown in Figure 1 and sets a prevalence of underweight that persists throughout the preschool years. It is likely that two main factors contribute to this growth faltering: inadequate complementary feeding and infectious diseases. This Bulletin uses data collected by the Nutritional Surveillance Project (NSP) to examine the quality of the foods given to infants aged 6 - 11 months, and to make some practical recommendations about how to improve infants' nutrition.

Breast-milk is best

Breast-milk is a complete food for the first 6 months of an infant's life. Unless the mother is deficient in micronutrients her breast-milk contains all the micronutrients, protein and energy her infant needs, and it is simple, economical and safe to give as well. Breast-feeding is almost universally practised in rural Bangladesh: data from the NSP in 2000 show that 99% of children

aged 6 - 11 months were given breast-milk, and that even among children aged 12 - 23 months, 93% were still being breast-fed. Figure 2 shows that these figures have changed very little over the last 10 years. But data collected by the NSP suggest that some of the problem of growth faltering shown in Figure 1 arises from poor complementary feeding practices: foods are not given often enough or from the right age, and they are of poor quality and quantity. Although breastfeeding is being sustained, other drinks or foods are given at too early an age with the consequence that few infants are exclusively breast-fed for long enough.

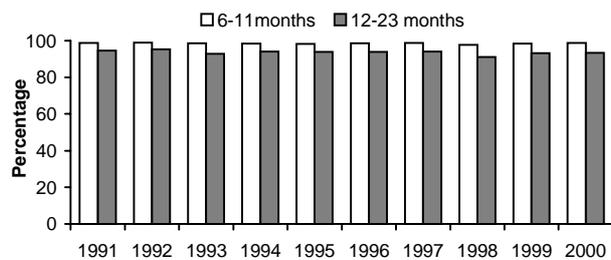
Figure 1. The prevalence of underweight among children aged less than 5 years old in rural Bangladesh using data from six bi-monthly cross-sectional surveys in 2000 (n=63,893).



Box 1. Recommendations for feeding infants aged 6-24 months²

- Continue frequent breastfeeding on demand.
- Start giving complementary foods at 6 months of age.
- Increase the quantity of food as the child gets older while continuing frequent breastfeeding.
- Increase the frequency of feeding as the child gets older using a combination of meals and snacks.
- Gradually increase the consistency and variety of food as the infant gets older.
- Diversify the diet to improve the quality and micronutrient intake: give green leafy vegetables and yellow and orange fruits or vegetables every day, and fish, meat or egg as often as possible.
- Prepare food hygienically, handle it safely, and serve it promptly.

Figure 2. The percentage of children aged 6-11 and 12-23 months who were reported to be breast-fed in NSP surveys between 1991 and 2000 (n = 170,967)



The need for other food

After the first 6 months of life breast-milk alone is not enough to meet the infant’s nutritional needs and other complementary foods are needed to fill the energy and nutrient gaps. Infants need frequent small meals that are rich in micronutrients, protein and energy, in addition to as much breast-milk as they want (see Box 1). Because infants have small stomachs and cannot eat large amounts at once, they need to be fed frequently with food that is soft and easy to swallow as well as rich in energy and other nutrients. The principle is that this food should complement breast-milk, not replace it, while children make the transition from being exclusively breast-fed to eating the same food as the family.

Providing good complementary food is a challenge for many busy mothers all over the world, but especially so in Bangladesh. First, many Bangladeshi mothers are too poor to be able to buy highly nutritious foods for their infant. Second, mothers may not have the time to prepare and feed several

small meals a day in addition to their other domestic or agricultural chores. And third, there is little awareness about the importance of giving good complementary foods. Matters are aggravated by the dangers of storing cooked food in warm and humid conditions, which allows bacteria to grow rapidly and can lead to food-poisoning and diarrhea. So what are infants being fed in rural Bangladesh, and what opportunities are there to improve complementary feeding practices?

Complementary feeding practices in Bangladesh

In 2000 the NSP collected data during six bi-monthly surveys on the type of foods that were given to nearly 7,000 infants aged 6 - 11 months, and on nearly 64,000 children aged less than 5 years old. More information about the NSP and the specific data collected is given in Box 2.

Figure 3 shows the main types of food that infants and children were given other than breast-milk. It reveals that many children are given complementary foods such as gruels and other liquids before 6 months of age, a period when they should be exclusively breast-fed. Around 6 months of age family food becomes an increasingly important part of the diet: 20% of infants aged 6 months were given family food as the main component of their diet, a percentage which rises to 56% among infants aged 9 months and reaches 87% among infants aged 12 months.

A diet that contains a variety of foods has two advantages: it increases the chances of satisfying requirements for nutrients, especially for vitamins and minerals, and the diversity stimulates the appetite. One way of examining the quality of the diet of infants is to see how often they eat certain key foods such as fish, egg, *dal*, green leafy vegetables, or fruit. Findings from the NSP indicate that gruels given to infants almost never contain these key foods, suggesting that well-prepared family foods may be a better option. How often mothers and their infants eat these key foods can also be compared, on the grounds that if the mother ate the food then her child could be given it as well. The NSP data collected in 2000 reveal that about 60% of infants aged between 6 and 11 months old had not eaten either fish, egg, *dal*, green leafy vegetables or yellow or orange fruit or vegetables in the last week, compared with less than 1% of their mothers. Figure 4 shows that, with the exception of fish, fewer than

4% of infants in this age range had been given key foods on four or more days in the last week. Fish had been eaten on four or more days in the last week by 57% of mothers and 13% of their infants, which shows that fish in particular could be promoted as an important source of protein for infants in Bangladesh.

An additional examination of what mothers and their infants ate in 2000 showed that only 4% of mothers gave their infant a key food that was not part of her own diet.

Figure 5 shows that the proportion of infants who ate the same key foods as often as their mother rose from less than 15% for children aged 6 months to more than 80% among children aged 24 months. These findings suggest that the transition from breast-milk to family food is very slow and that infants are rarely given foods containing micronutrients and protein, even when these foods are available in the household. This suggests that there is potential to improve infants' diets by encouraging households to give family foods to infants.

What to do

Breast-milk and a good mixture of family food can meet the needs of young children after the age of 6 months. Mothers and caretakers should be encouraged to give infants the same foods as the rest of the family but perhaps mixed in different proportions, supplemented with nutritious ingredients that can be added easily, such as oil, and mashed so it is easy to swallow. Between these meals mothers should be encouraged to give simply prepared snacks such as mashed fruits or vegetables or bread soaked in milk, as well as breast-milk, so that their infants are fed little but often.³

Much can be done within the household to improve infants' diets, but still many infants will not get enough nutrients because the household does not have access to such foods; households are poor and many mothers are themselves undernourished.⁴ This bulletin has explored a household-level strategy for improving infant nutrition, but national-level policies and programs need also to be considered. Ultimately there is a need for broader nutritional policies and interventions which can improve access to nutritious foods for all household members, such as fortifying staple foods with micronutrients or supplementing infants and pregnant mothers with iron, vitamin A or multiple micronutrients. (Continued on back page)

Box 2. The Nutritional Surveillance Project (NSP)

The Nutritional Surveillance Project was established in 1990 by Helen Keller International in collaboration with the Institute of Public Health Nutrition of the Government of Bangladesh. Every two months data are collected in randomly selected rural households in 24 sub-districts to provide a sample of children aged 0 - 59 months and their mothers that is representative of the six divisions of Bangladesh and of the country as a whole.

During an interview each mother is asked if she is currently breast-feeding her child and what other food or drink she is giving, if any. The mothers is asked what foods are the main component of the child's diet: family food, gruel, animal or powdered milk or other liquids. Mothers are also asked to recall on how many days in the last week she and her infant ate certain key foods, such as fish, egg, dal, green leafy vegetables, and yellow or orange fruit or vegetables.

Figure 3. The main type of foods given to young children and infants aged less than 24 months reported by their mothers in rural Bangladesh in 2000 (n = 26,557)

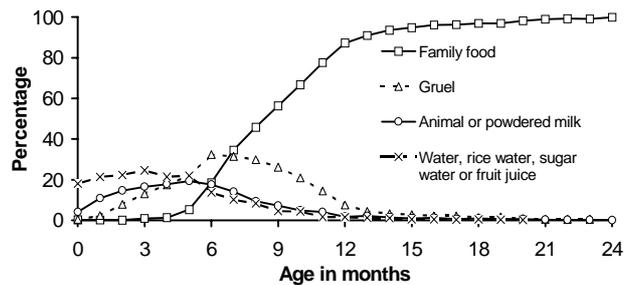


Figure 4. The percentage of non-pregnant mothers and infants aged 6-11 months (n pairs= 4,544) who had eaten dal, egg, fish, green leafy vegetables (GLV) or yellow or orange fruits or vegetables (YOFV) 1-3 days or 4 or more days in the last week

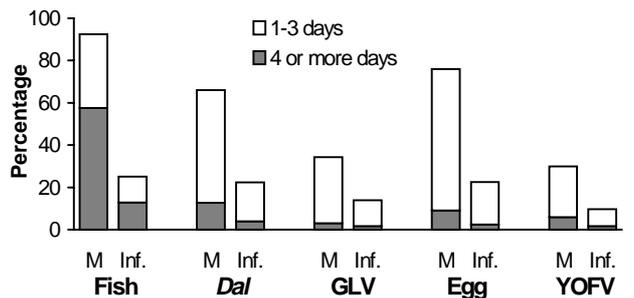
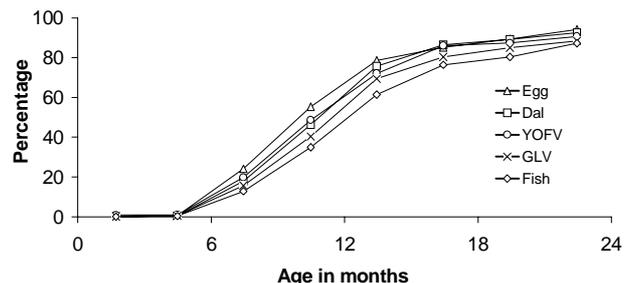


Figure 5. The percentage of children who eat "key" foods at least as often as their mothers by age (n=17,865)



Conclusions

- Breastfeeding is almost universally practised from the birth of an infant, and most mothers continue giving breast-milk well into the second year of life.
- Complementary foods are given to infants aged less than 6 months who should be exclusively breast-fed.
- The prevalence of undernutrition among infants rises sharply between 6 and 11 months of age, providing stark evidence of poor complementary feeding.
- The complementary meals given to infants aged 6 to 11 months old rarely contain commonly eaten Bangladeshi foods which are rich in micronutrients and protein, such as fish, *dal* and eggs. This may be because they are not available in the household but, even when they are, they are often not included in the food given to infants.

Recommendations

- Support for breast-feeding should be sustained.
- Complementary feeding should begin when a child is 6 months old. Mothers should be encouraged to give infants the same foods as the family but in different proportions, supplemented with a little oil if possible, and mashed to ensure that it can be easily swallowed. Between family meals simple, freshly prepared snacks should be given.
- Opportunities to fortify staple foods and give multiple micronutrient supplements to both mothers and infants should be promoted.
- The NSP should continue to monitor trends in Bangladesh in nutrition, health and feeding practices.

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